WE CLAIM:

1. In an engine of the type having a working space, characterized by a mean pressure, and a sealed crankcase, characterized by a crankcase pressure, an improvement comprising a valve in fluid communication with both the working space and the crankcase, the valve permitting fluid flow between the working space and the crankcase when an absolute value of a difference between the mean working space pressure and the crankcase pressure exceeds a specified value.

2. A device according to claim 1 wherein the engine is a Stirling cycle engine.

3. A device according to claim 1 wherein the pressure difference is the difference between the mean working space pressure and a mean crankcase pressure.

4. A device according to claim 1 wherein the valve connection to the working space includes a constriction.

5. A device according to claim 4 wherein the valve connection to the crankcase includes a constriction.

6. A device according to claim 5, wherein the constriction in the valve connection to the crankcase is smaller than the constriction in the valve connection to the working space.

7. A device according to claim 1, wherein a pressure at which the valve opens is determined by a preloaded spring.

8. A device according to claim 1, wherein the device includes a piston to damp pressure oscillations.

9. In an engine of the type having a working space, characterized by a mean pressure, and a sealed crankcase, characterized by a crankcase pressure, an improvement comprising a valve in fluid communication with both the working space and the crankcase, the valve permitting fluid flow from the working space to the crankcase when the working space pressure exceeds the crankcase pressure by a first specified value and permitting fluid flow from the crankcase to the working space when the crankcase pressure exceeds the working space pressure by a second specified value.

10. A device according to claim 9 wherein the first specified value exceeds the second specified value.

11. A method for minimizing a pressure difference between a working space and a sealed crankcase in an engine, the method comprising:

a. monitoring a pressure difference between the working space and the crankcase and;

b. opening a valve in fluid communication with the working space and the crankcase when the absolute value of the pressure difference exceeds a specified value.

12. A method according to claim 11 wherein the engine is a Stirling cycle engine.

13. A method according to claim 11 wherein the pressure difference is the difference between the mean working space pressure and the crankcase pressure.

14. A method according to claim 11 wherein the pressure difference is the difference between the mean working space pressure and the mean crankcase pressure.

15. A method according to claim 11 wherein the valve connection to the working space includes a constriction.

16. A method according to claim 11 wherein the valve connection to the crankcase includes a constriction.

17. A method according to claim 11, wherein the valve includes a piston to damp pressure oscillations.

18. A method according to claim 11, wherein a pressure at which the valve opens is determined by a preloaded spring.

19. A method for minimizing a pressure difference between a working space and a sealed crankcase in an engine, the method comprising:

a. monitoring a pressure difference between the working space and the crankcase and;

b. opening a valve in fluid communication with the working space and the crankcase when the working space pressure exceeds the crankcase pressure by a first specified value; and

c. opening a valve in fluid communication with the working space and the crankcase when the crankcase pressure exceeds the working space pressure by a second specified value.

20. A method according to claim 19, wherein the first specified value exceeds the second specified value.